

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
4 September 2003 (04.09.2003)

PCT

(10) International Publication Number
WO 2003/072710 A3

(51) International Patent Classification⁷: C12N 1/00,
G01N 33/48, C07K 14/00

(21) International Application Number:
PCT/US2003/005042

(22) International Filing Date: 20 February 2003 (20.02.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/358,986 21 February 2002 (21.02.2002) US

(81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(71) Applicant (*for all designated States except US*): EAST-ERN VIRGINIA MEDICAL SCHOOL [US/US]; Department of Microbiology and Molecular Biology, 700 West Olney Road, Norfolk, VA 23501 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): WRIGHT, George, L., Jr. [US/US]; 829 Moultrie Court, Virginia Beach, VA 23455 (US). CAZARES, Lisa, H. [US/US]; 1302 Equinox Landing, Chesapeake, VA 23322 (US).

(74) Agents: SCHELLING, Donald, L. et al.; TOWNSEND AND TOWNSEND AND CREW LLP, Two Embarcadero Center, 8th Floor, San Francisco, CA 94111-3834 (US).

Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) *for US only*

Published:

— with international search report
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:
22 July 2004

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PROTEIN BIOMARKERS THAT DISTINGUISH PROSTATE CANCER FROM NON-MALIGNANT CELLS

(57) Abstract: This invention provides organic biomolecule markers (e.g., proteins) useful for differentiating prostate cancer, prostate intraepithelial neoplasia or benign prostate hyperplasia, from a negative diagnosis (i.e. normal and benign prostate epithelial cells).



WO 2003/072710 A3

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US03/05042

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C12Q 1/00; G01N 33/48 C07K 14/00

US CL : 435/4; 436/64; 530/300, 350

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 435/4; 436/64; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
Medline, Biosis, Scisearch, Cancerlit, Lifesci, Biotechds, Caplus, PCTfull, USpatfull, Europatfull on STN.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WRIGHT et al. Proteinchip surface enhanced laser desorption/ionization (SELDI) mass spectrometry: a novel protein biochip technology for detection of prostate cancer biomarkers in complex protein mixtures. Prostate Cancer and Prostatic Diseases. March 1999, Vol.2, No. 5-6, pages 264-276, especially page 269, Figure 3A.	1-13, 24-46
X	CAZARES et al. Discovery of Prostate Cancer Biomarkers from Laser Capture Microdissected (LCM) Cells Using Innovative Proteinchip SELDI Mass Spectroscopy.	42-44
Y	Proceedings of the American Association for Cancer Research. March 2000, Vol. 41, page 851, abstract #5407.	1-41, 45, 46
A	SRINIVAS et al. Proteomics in EARLY Detection of Cancer. Clinical Chemistry. October 2001, Vol. 47, No. 10, pages 1901-1911.	1-46.
A	ADAM et al. Proteomic approaches to biomarker discovery in prostate and bladder cancers. Proteomics. October 2001, Vol. 1, pages 1264-1270.	1-46
A	XIAO et al. Generation of a Baculovirus Recombinant Prostate-Specific Membrane Antigen and Its Use in the Development of a Novel Protein Chip Quantitative Immunoassay. Protein Expression and Purification. June 2000, Vol. 19, pages 12-21.	1-46

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T"

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X"

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y"

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&"

document member of the same patent family

Date of the actual completion of the international search

25 January 2004 (25.01.2004)

Date of mailing of the international search report

03 JUN 2004

Name and mailing address of the ISA/US

Mail Stop PCT, Attn: ISA/US
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Facsimile No. (703)305-3230

Authorized officer

Anthony Caputo

Telephone No. 703-308-0196